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An examination was begun of the development of an individual's ability to adhere to standards and to reward himself for only those performances above criterion. Also to be determined were what social variables affect this ability. Two experiments were run that placed 8- to 10-year-olds in a situation with a miniature bowling game (secretly controlled by the experimenter) and tokens with which to reward themselves for their bowling scores. The significant variables manipulated were the method of informing the subject of standards, the status of model or instructor, the incentive level, and the rule structure. The results indicated that rule structure may play a vital role in children's private adoption of standards, that increased incentive results in lowering of standards, and that direct instruction and modeling both establish standards better than no instruction but don't differ in effect from each other. Even in the performance of subjects who deviate from the established standards, the underlying principle of reward for high scores is adhered to. For lower class subjects, high status increases the influence of people giving direct instructions but decreases the influence of those acting as models. It appears that a child's adoption of self-imposed standards depends on the operation of social influence variables. (MH)

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Final Report

Project No. 7-D-002
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# The Acquisition of Self-Reward Patterns by Children

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## Summary

The purpose of the project was to begin an examination of the manner in which children learn to control and pattern their self-administration of rewards. The first two experiments investigated the effects of several social learning variables upon children's adoption of a stringent self-reward standard when playing a miniaturized bowling game.

Employing a 2 x 2 x 3 factorial design, Experiment I examined the influence of incentive level, sex of subject, and method of training upon children's adoption of a self-reward standard. As predicted, high incentive resulted in greater violation of the standard than did low incentive when subjects were permitted to perform alone in the absence of any social agents. Further, as anticipated, modeling and direct instruction were equally effective when compared to each other and both were superior to a control condition. Finally, an hypothesized "patterning" of deviations from the standard was found in both the modeling and direct instruction groups.

Experiment II utilized a 2 x 2 x 2 factorial design to examine the effects of status of the training agent, degree of rule structure, and method of training upon adherence to a stringent standard presented to all children. Significant effects were found for rule structure and for the method x status, rule x status, and method x rule x status interactions. As predicted, high rule structure resulted in greater adherence to the standard than did low rule structure. The interactions were primarily due to subjects in the low rule structure, high status modeling condition. These subjects violated the standard far more often than any of the other subjects.

In the final section an effort was made to integrate the findings of the two experiments and to relate them to research from other laboratories. Additionally, implications for both further research and naturalistic training procedures were suggested.

## SECTION I

### Introduction

A person's ability to impose standards upon himself in the absence of external constraints is an important aspect of socially acquired self-control. Society continually requires its members to monitor and evaluate their own performance and to set standards for the self-administration of various gratifications. Thus, many formal socialization practices involve direct instruction to abide by prescribed standards for monitoring oneself.

In our culture, for example, children are often admonished by parents and teachers to be truthful, to be fair in their dealings with others, and to put forth maximal effort in achievement situations. The purpose of such training is presumably to encourage later adherence to these standards when the individual is free to regulate his own behavior and is not constrained by the presence of external agents. Thus, it is reasonable that the effectiveness of these practices is often measured by the degree to which persons adhere to standards when the objective characteristics of the situation readily permit deviation from previous training. Exercising self-control in such tempting situations is often taken as an index of "internalization" in traditional views of personality and, regardless of theoretical stance, is clearly a critical facet of human development.

It is also apparent that direct instruction is frequently not the sufficient condition for inculcating self-imposed criteria. Children and adults may forsake their training and are often observed "lowering their standards" in a variety of ways, particularly when high-magnitude incentives are at stake. Thus, many students of social behavior have recently attempted to conceptualize and empirically define the optimal conditions for inducing and maintaining appropriate self-regulated standards.

Social learning analyses (Bandura & Walters, 1963; Bandura, 1968) suggest that there are two processes through which an individual may acquire self-regulatory standards; (1) he may learn them through the direct instruction imparted to him by a social agent, or (2) he may acquire them through observation of the standards which others use. Both processes have been the subject of recent investigation. For example, Kanfer and Marston (1963) demonstrated that direct instruction can have substantial effects on adults' self-administration of rewards, and suggest that their instructional paradigm is an experimental analogue to "self-confidence training." They asked subjects to guess which of six words were "subliminally" flashed on a screen. In fact, the stimulus presented was a 4-letter nonsense syllable, with each of the letters altered beyond recognition. Persons in one group were encouraged to take a token reward for each trial on which they were confident that they had made the "correct" guess. In a second group tokens were also available, but subjects were urged to take these only

when they felt they were correct "without reservation." The differential effects of the two types of instruction were quite clearly demonstrated. Subjects who were encouraged to reward themselves did so on 58% of the trials presented, while subjects who were discouraged rewarded themselves on only .2% of the trials. Further, it was found that this training generalized to another task. That is, persons who had been encouraged to reward themselves on the guessing task subsequently expressed greater confidence in their performance on a bona fide learning task. Additional work by Marston (1964) provides further support for the hypothesis that self-reward is an underlying process in the acquisition of standards. He found that markedly different indices of adopted performance criteria (self-administration of tokens, lights, and a self-evaluative rating scale) yield essentially comparable incidence rates for adult subjects.

The manner in which standards are acquired through observing the behavior of others has also been recently examined. Bandura and Kupers (1964) had children participate in a bowling game with a social model, during which time both the model and the child were given access to a plentiful supply of small candies. Possible scores on the game ranged from 5 to 30, and were controlled by the experimenter. In one experimental condition the model rewarded himself with candy only for scores of 20 or above, while in a second condition the model rewarded himself for all scores above 5. After this exposure, the children were permitted to play the game in the absence of the model, again with free access to candies. It was found that the performance standard exhibited by these children closely matched that of the model to whom they had been exposed. Thus, children who had observed the more stringent model availed themselves of the candy very sparingly, despite the fact that it was readily available.

Recent research has also examined the combination of direct instruction and observational learning on the adoption of self-reward standards (Mischel & Liebert, 1966; 1967). In life situations standards are frequently transmitted by persons who administer direct instructions and also, purposely or inadvertently, model or exhibit the standards of performance to which they personally adhere. Further, the modeled behavior of social agents is not always consistent with the direct tuition which they provide for others. Consider, for example, the parent who attempts to inculcate self-denial and stringent achievement standards in his offspring, while at the same time consistently indulging himself. These discrepancies may considerably affect the achievement standards which the child ultimately adopts for himself. To examine this training paradigm, Mischel and Liebert (1966) asked children to participate with an adult model on an automated miniature bowling task which seemingly required skill but on which scores were experimentally controlled. A plentiful supply of tokens which could be exchanged for rewards was available to both the model and the subject. In one experimental group the model rewarded herself only for high levels of performance but guided the subject to reward himself for lower achievements; in a second condition the model rewarded herself for low performance but led the subject to reward himself only for higher achievements; in the third group the model rewarded herself for

high performance and guided the child to reward himself only for equally high achievements. Following these procedures, measures were taken of the child's self-reward criteria while performing the task in the absence of the model or any other social agent. Children who had been permitted to reward themselves on relatively low performances during training by a self-stringent model showed no conflict about rewarding themselves for mediocre performance in the model's absence, and did so uniformly. Children who had been instructed to reward themselves only for high performance levels by a model who also exhibited adherence to this stringent schedule subsequently maintained this high criterion when left to perform entirely alone. In contrast to these two groups, subjects who had stringency imposed them but observed the training agent behaved self-indulgently did not behave in a consistent fashion. Approximately half of the subjects in this last group continued to adhere to the more stringent standard on which they had been directly trained, while the other half adopted the more lenient standard which they had observed. Thus, consistency between direct instruction and the behavior exhibited by the training agent may be quite important for effective socialization practices.

The findings reviewed above all represent tentative efforts to systematize the manner in which self-reward standards are learned and used. As seen in the next section, the purpose of this project is to extend previous research by comparing both training procedures and the relative efficacy of other social variables in influencing children's private adoption of self-reward standards.

## SECTION II

### Approach to the Problem

Until recently, relatively little empirical study has been addressed to the adoption of self-reward standards by children. Additionally, the major focus of the existing literature has been on observational learning or "modeling," with a surprising paucity of investigation on the transmission of these patterns through direct instruction. Thus, this project initiated a systematic program of research on children's adoption of standards through both modes of training.

The research strategy is guided by three general points. First, the effects of various antecedent conditions on observational learning and on direct instruction may be quite different. Examination of variables considered to be relevant to the adoption of standards should consider these training methods separately and in combination. Second, in naturalistic settings the training efforts to which an individual is exposed differ from one another with respect to a host of variables including the characteristics of the training agent or agents (e.g., their age, sex, and social status) and various attributes of the situation (especially the material and social consequences for adhering to any particular criterion). The combined influence of these factors should be examined. Finally, we recognize that the researches reported thus far are quite distant analogs to life situations. Thus, once variables which influence children's adoption of standards have been isolated in simplified laboratory settings, they must be examined in conjunction with other important social variables in experimental situations which increasingly parallel those which persons are likely to encounter in the normal course of socialization. Thus, the first experiments conducted under the auspices of this grant were intended to examine the effects of (1) the material value associated with token rewards and (2) the social status of the training agent on both the direct teaching and observational learning of self-reward standards.

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## SECTION III

### Experiment I

If children perform a task which seemingly requires skill and are permitted to take token rewards for their performance, it may be hypothesized that one determinant of the degree to which they will adhere to the pre-established standard will be the material value of these tokens. In fact, provision of consequences or incentives has been a persistent theme in most recent psychological research. Nonetheless, a previous study from our laboratory (Liebert & Allen, 1967) failed to find an effect for the magnitude reward associated with plastic tokens in this situation. Liebert and Allen's results suggested that offering children unidentified prizes made little difference in their adherence to a self-reward criterion when they performed alone. In the present study half of the subjects were shown a wide selection of items (ranging from a small wooden pencil costing 10¢ to a handsomely packaged camera with a retail value of $12.45). Subjects were informed that the tokens could be exchanged for one of these prizes and "the more chips you have, the better the prize." Further, it was ascertained that each child found one of the displayed prizes highly attractive before serving in the remainder of the experiment. It was hypothesized that, under these conditions of high incentive, subjects should show more self-reward for sub-standard performance than when no value was ascribed to the tokens.

In social behavior theory (e.g., Mischel, 1968), the observation of others, as well as direct instruction, is recognized to potentially affect persons' adoption of standards. For example, recent researches have influenced behavior patterns through filmed modeling (Bandura, Ross, & Ross, 1963), simultaneous observation of a model by groups of subjects who themselves never perform in the model's presence (Bandura, Grusec, & Menlove, 1967 ), and even through a written report of the behavior of another (Bandura & Mischel, 1965). Thus, not surprisingly, recent experiments have endeavored to compare the influence of modeling and direct instruction on the adoption of self-reward criteria (Bee & Colle, 1967; Liebert & Allen, 1967). Liebert and Allen found no difference in effectiveness between modeling and direct instruction and other studies (e.g., Bandura & Kupers, 1964) have found modeling to be quite potent in the transmission of self-reward criteria. In contrast, Bee and Colle (1967) reported that their high standard modeling group was not different from a no-criterion control group. However, as these authors note, their modeling procedures differed from those of previous researches. Namely, they omitted a statement of contingency or "deservingness" from the verbal comments of their model. Thus, instead of "that's a good score, that deserves a chip," the model merely indicated "that's a good score."

One of the purposes of the present study was thus to demonstrate that if a self-reward rule is structured in terms of deservingness then modeling will be significantly more effective than no training in inculcating a self-reward criterion. Thus the present experiment included a modeling, a direct instruction, and a no training control condition. The criterion presented in the modeling and direct

instruction groups was quite stringent in the sense that self-rewards were taken only for the highest possible score on our apparatus (20). It was predicted that violation of this rule (i.e., self-administration of one or more tokens for scores of less than 20) would occur less often in the modeling and direct instruction groups than in the control group. Further, in accord with our previous data (Liebert & Allen, 1967), it seemed likely that the modeling and direct instruction would not differ in their effectiveness or interact with incentive level.

Additionally, although we have previously examined our data primarily in terms of number of deviations from the self-reward rule presented during training, it was decided to follow the procedure of Bee and Colle by supplementing this data with an examination of self-reward patterns for sub-standard scores. Thus, to the extent that subjects generalize the principal of a performance contingency for the self-administration of tokens, deviations (when they occur) should occur more often for relatively high than for quite low scores in both the modeling and direct instruction groups. In contrast, the untrained control group was expected to show no such pattern.

## Method

### Design

A 2 x 2 x 3 factorial design was used employing the sex differentiation of subjects, two levels of incentive, and three modes of rule transmission. An equal number of children of each sex were assigned in order of appearance to each of the six experimental groups.

### Subjects and Experimenters

The subjects were 72 children (36 boys and 36 girls), 8 to 10 years of age, from an elementary school in the Nashville area. The same adult male served as transmitting agent for all subjects. Two other adult males served as experimenters and a fourth as observer. All of these experimenters maintained their respective roles throughout the study.

### Apparatus

The apparatus was a miniature bowling alley consisting of a three-foot runway with seven score lights on its upright section. The score of 5 appeared once and the scores of 10, 15, and 20 each appeared twice. A green and a red signal light, also located on the upright section of the panel, indicated "start" and "game over" respectively. The upright section of the panel also concealed a series of relay switches which permitted production of a fixed pattern of scores. As an informal check on the effects of order of scores, half the subjects in each group received the pattern 5, 20, 5, 10, 10, 15, 15, 20, 15, 20, 20, 5, 20, 15, 10, 5, 10, 10, 15, 5 when

playing alone while the remaining half received the order 20, 5, 20, 15, 15, 10, 10, 5, 10, 5, 5, 20, 5, 10, 15, 20, 15, 15, 10, 20. Note that both orders consist of five 5's, five 10's, five 15's, and five 20's. Our previous research has shown that this apparatus is very appealing to elementary school children, who uniformly accept it as a game of skill.

## Procedure

Each child was brought individually from his classroom to a conference room in the school building. En route, the first experimenter ($E_1$) indicated that a new bowling game was being tested to see how well children liked it. Each child was questioned with set probes on his knowledge of the game and discarded (i.e., permitted to play ten trials without criterion or incentive manipulation) if he verbalized the self-reward criterion of if, in the low incentive group, he had heard of the prizes. Upon reaching the conference room, the child was introduced to a second experimenter ($E_2$) who manipulated the incentive level, conducted a post-experimental interview, and presented the prize awards. After presenting the incentive level manipulation, $E_2$ took the child into the hall and introduced him to the transmitting agent (TA). The TA then escorted the child to a mobile research trailer located on the school premises where he exhibited and briefly indicated the operation of the bowling game and indicated the availability of the small plastic poker chips used as token rewards. The TA then presented the appropriate criterion manipulation. Thereafter the TA said he had to leave and told the child to play by himself, to see how well he could do. At the end of the subject's twenty trials of play an observer, located in the trailer's one-way observation booth, cued the TA's return with a signal light mounted on the outside of the trailer. The TA then returned the child to $E_2$, who collected the child's tokens and, for subjects in the high incentive condition, "exchanged" these for one of the smaller displayed prizes.

## Manipulation of Incentive Level

The conference room into which all subjects were first taken was prepared with a 10 foot sheet, used as a room divider. Behind this curtain a wide variety of toys and school supplies, ranging in retail value from 10¢ to $12.45, was displayed. Subjects in the high incentive condition were taken behind the sheets by $E_2$ and shown these objects without being permitted to handle them. Each child was asked for his reaction to these items, and for his preference. Irrespective of which item or items were chosen, the child was informed that he might win these commodities in the game he was going to play, but that a very large number of tokens would be required. In contrast, low incentive subjects were never shown or told about this display, but were instead conversationally asked for their reactions to a display of dull-looking text books located in the conference room for about the length of time required for the high incentive manipulation.

### Methods of Transmission

One-third of the children saw the TA exhibit or model a stringent self-reward criterion, one-third were directly trained on this same stringent criterion, and one-third were given no information by the TA as to a criterion for self-reward. In the modeling condition, the TA bowled ten trials in the child's presence, rewarding himself for all scores of 20, but never for lower scores. The intended contingency of this behavior was further communicated through the TA's enthusiastic utterance for each score of 20 ("20, that's a good score. . . that deserves a chip") and his disparaging of all lower scores (e.g., "15, that's not a very good score. . . that doesn't deserve a chip"). For direct training, the subject bowled ten trials in the TA's presence and was encouraged to reward or refrain from rewarding himself in a manner analogous to the procedure used for modeling (e.g., "15, that's not a very good score. I don't think you deserve a chip for that score"). All subjects conformed to these directions without exception in the TA's presence. Children in the control condition were given no information as to the criterion for self-reward.

Further, to equate for number of tokens possessed at test onset, the TA returned the chips of subjects who were directly trained to the large supply bowl located near the game and, before leaving, emphasized that they could now play "for real."

### Dependent Measure

The measures collected were the scores for which chips were taken by subjects when performing alone.

## Results

### Adherence to the Stringent Self-Reward Criterion

A three-way analysis of variance was performed on subjects' rule violation scores (i.e., taking one or more tokens for scores less than 20) for each treatment. This analysis revealed that the predicted effects for both mode of transmission ($F = 30.48$, $p < .0001$) and incentive level ($F = 12.18$, $p < .001$) were obtained. No sex effect was found ($F < 1$) nor did any of the interactions approach statistical significance. (All $F$s $< 1$.)

Further, $t$ tests computed by Dunnett's procedure for dependent comparisons (Winer, 1962, p. 89) revealed that both the modeling ($t = 6.50$, $p < .001$) and the direct training ($t = 6.98$, $p < .001$) differed significantly from the control in the direction of greater adherence to this stringent criterion. A simple $t$ comparison between the deviation scores of the modeling and direct training groups failed to detect a difference between these two groups ($t = .54$). The mean deviation scores for all groups are presented in Table 1.

TABLE 1

Mean Deviation Scores for All Treatment Groups

| Subgroup | Control | Modeling | Training |
|---|---|---|---|
| Low Incentive | 7.417 | 0.917 | 0.083 |
| High Incentive | 12.750 | 3.250 | 2.917 |

Patterning of Self-Administered Tokens for Sub-Standard Scores

It was hypothesized that subjects in the modeling and direct training groups would, when they deviated from the self-reward contingency to which they had been exposed, generalize the principle of a self-reward contingency by taking tokens more for relatively high scores (i.e., 15) than for relatively low scores (i.e., 10) and very low scores (i.e., 5). The no-training control was not expected to show this patterning. As seen in Figure 1, the present data support this reasoning. Further, note that the order of appearance of scores does not appear to be a major influence in this patterning. The probability of obtaining this expected order effect in both training groups for both sexes is $(1/6)^4$ or $p < .001$.

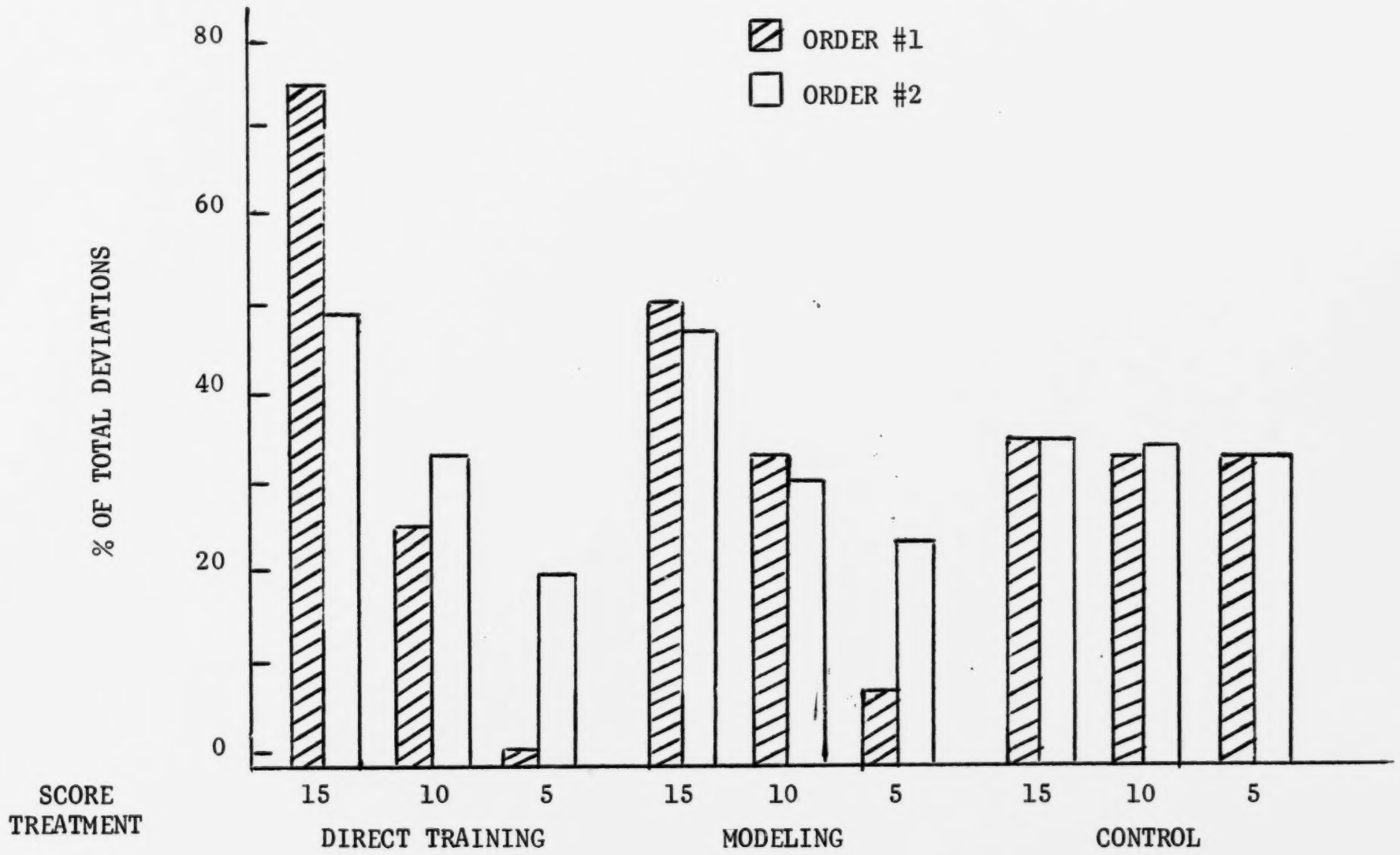


Figure 1. Percentage of Total Rule Deviations for each score in all treatments.

## SECTION IV

## Experiment II

Both theory and research in a social learning framework suggest that the effectiveness of a social agent may be partially determined by his apparent social status (e.g., Bandura & Kupers, 1964; Bandura & Walters, 1963; Lefkowitz, Blake, & Mouton, 1955). Thus it was hypothesized that, in efforts to inculcate highly stringent self-imposed standards, the visible signs of status of the training agent will influence the likelihood that his suggested or exhibited standards will be adopted by others. To examine this possibility in the present experiment, a female social agent presented herself as either a president of a ladies' club or as a maid before providing training on the task. Further, her manner of speech, attire, and use of cosmetics and jewelry confirmed visually the social status which she ascribed to herself.

Liebert and Allen (1967) found that the verbal structuring of rules for adherence to a self-imposed standard by a training agent significantly increased subjects' willingness to adopt a highly stringent standard when alone. Thus, a second purpose of the present experiment was to replicate Liebert and Allen's finding with respect to rule structure and to determine whether this variable interacts with the apparent status of the training agent.

Finally, in keeping with our initial hypothesis that direct instruction vs. modeling may interact with other socially relevant variables, these two modes of training were again compared.

### Method

#### Design

This investigation utilized a 2 x 2 x 2 factorial design in which modeling or direct instruction was provided by a training agent of either high or low apparent status who employed either high or low rule structure. As in Experiment I, an equal number of children of each sex were assigned in order of appearance to each of the treatment conditions.

#### Subjects and Experimenters

The subjects for the study were 24 male and 24 female children, 8 to 9 years of age, from an elementary school in a lower middle class area of Nashville. One adult female served as experimenter and a second as training agent throughout the experiment. A third experimental confederate served as observer.

## Apparatus

The apparatus was similar to the bowling game described in Experiment I, with a modified display of ten score lights arranged in the familiar wedge shape of alley bowling. The score of 5 appeared four times in the top row; the score of 10 appeared three times in the next row; 15 appeared twice in the third row; and a single 20 constituted the bottom row. A green and a red signal light indicated "start" and "game over" respectively. The apparatus, as indicated above, contained a panel of relay switches which produced a fixed program of scores for all trials. As in Experiment I, although the pattern of scores obtained was unchanged from the training to the testing situation, no child questioned the representation of this device as a game of skill.

Additionally, a button-operated token dispenser, which delivered a stainless steel coin the size of a penny, replaced the large bowl of plastic tokens used in Experiment I.

## Procedure

The children were individually escorted to a mobile research laboratory by the adult female experimenter. She described herself as the representative of a toy company which wanted to get children's reactions to a new bowling game. The training agent, who was also an adult female, met the experimenter and the child at the trailer and introduced herself as a person who had also come to see the new game.

The experimenter explained the game to both the child and the adult and then left them "so they could try it out." The training agent then communicated her own stringent self-reward rule to the child through either modeling or direct instruction (see Experiment I) and left. The experimenter then returned, introduced an incentive manipulation similar to the one described in Experiment I, and permitted the child to bowl alone while having free access to reward tokens.

## Manipulation of Status

The status manipulation was effected through both the training agent's physical appearance and self-description. In the high status condition the training agent wore an expensive looking outfit, appropriate jewelry, and a stylish hair arrangement. She described herself to the children as president of the Nashville Ladies' Club. In the low status condition her hair was disheveled, she wore no make-up, and her dress is a worn out maid's unifrom which was resurrected from a local laundry's rag bin. She described herself to the children as a maid.

## Results

A four-way analysis of variance was performed on subjects' rule violation scores. This analysis yielded significant effects for rule structure ($F = 4.20$, $p < .05$), the training by status interaction ($F = 12.29$, $p < .005$), the rule structure by status interaction ($F = 4.28$, $p < .05$), and the training method by status by rule interaction ($F = 6.80$, $p < .02$). The mean deviation scores for all groups are presented in Table 2.

TABLE 2

Mean Deviations From Stringent Self-Reward Rule[a]

| Method of Instruction | Rule Structure: High | Rule Structure: Low | |
|---|---|---|---|
| Model | 2.000<br>1.833 | 9.833<br>1.000 | 3.667 |
| Direct | 1.667<br>3.167 | 1.500<br>4.000 | 2.583 |
| | 2.167 | 4.083 | |

[a] Scores for high status subjects appear above the dotted lines; low status subjects are below.

The subjects in the low rule structure conditions deviated more from the stringent self-reward standard than did the subjects in the high rule conditions. These results are congruent with those reported by Liebert and Allen (1967). The interactions found in the present study are presented in Figure 2.

The method of training by status interaction resulted from the fact that subjects exposed to a high status model deviated more than those exposed to a low status model, while subjects directly instructed by a high status agent adhered more than those subjects directly instructed by a low status agent. The rule by status interaction appears because subjects exposed to a modeled rule of low structure deviated significantly more than subjects in any of the other groups. This interaction and the triple interaction, can be explained by subjects in the low rule structure, high status modeling condition. These subjects violated the rule more frequently (mean deviations = 9.83) than the other subjects, whose means were all less than 4.00.

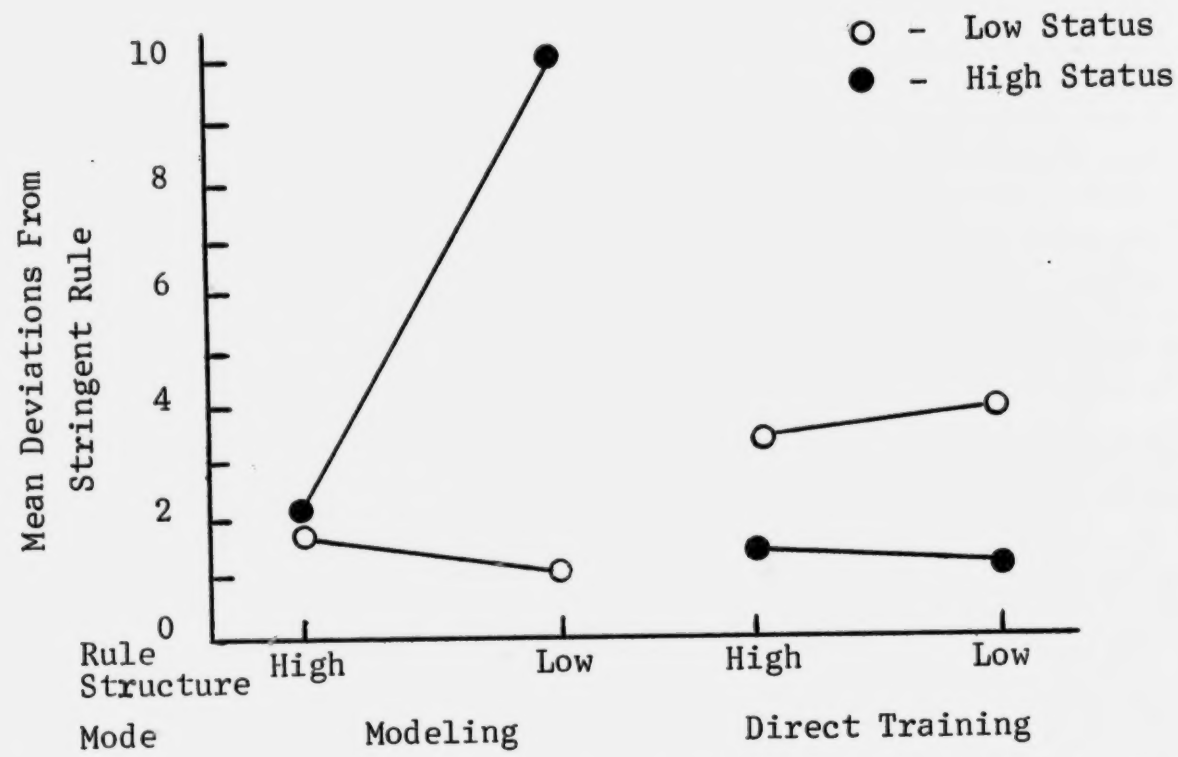


Figure 2. Interaction of Treatment Effects in Experiment II

## SECTION V

## Discussion and Implications

The results of these experiments appear to provide promising support for the general formulation that children's adoption of self-imposed standards can be developed and understood through the operation of social influence variables. The earlier failure to find a significant effect for material incentives upon childrens' adoption of a standard appears to have been due to methodological difficulties rather than the viability of the hypothesis, as indicated by the powerful effect found in Experiment I. Further, the results of Experiment II appear to provide strong additional support for the hypothesis that the verbal structuring of rules can play an important part in the transmission of self-imposed standards. Additionally, Experiment I suggest that the training procedures used may engender not only partial adherence to a precise rule (i.e., the self-administeration of tokens for scores of 20) but, even in "deviant" subjects, may induce the principle which underlies the standard and produce a correlation between self-administration of rewards and the "goodness" of the scores obtained. Finally, Experiment II suggests that the apparent social status of the training agent plays an important and intriguing role in this aspect of the socialization process.

In Experiment I, as predicted, the stringent self-reward rule was adhered to significantly more both by subjects who were directly instructed and by those who were trained by merely observing a model than by no-training control group. Further, modeling and direct instruction

did not differ in their effectiveness in the present study. Recall that the procedures used for both of these training manipulations emphasized contingencies or "deservingness" in transmitting the self-reward criterion. To the extent that comparisons can be made between these findings and those reported by Bee and Colle (1967), it may be reasoned that a statement of contingency by a social model for his performance will be a critical determinant of whether the model's self-stringent standard will be adopted in his absence. It would also be interesting to determine whether the explicit verbalization of contingency or deservingness enhances the potency of direct instruction. Previous research (Liebert & Allen, 1967) suggested that both direct training and observation of a model are more effective when the training agent verbalizes the contingency for his performance than when he engages in no verbalizations. A critical question for further investigation of this issue is whether minimal verbalization ("that's a good score") and verbalization of a contingency ("that's deserves a chip") are additive when compared to the effects of nonverbalizing training agents, or whether only the expression of contingency is critical.

The results of Experiment I supported the hypothesis that children trained both directly and through modeling procedures will tend to make self-reward contingent upon their performance even on those occasions when they self-administer rewards for sub-standard performance. Thus, as seen in Figure 1, subjects in the two training groups rewarded themselves (deviantly) most often for scores of 15, less often for scores 10, and least often for scores of 5. In contrast, no such pattern was revealed by the untrained control group.

Experiment II provided further corroboration for the previously reported findings that rule structure may play a vital role in children's private adoption of standards. This finding appears to be a consistent extension of our previous examination of the presence or absence of explanatory verbalizations (Liebert & Allen, 1967) and of studies suggesting the importance of rule structure in enhancing the effects of punishment (Walters & Cheyne, 1966) and training in self-criticism (Aronfreed, 1963; Aronfreed, Cutick, & Fagen, 1963).

The remarkable interactions found in Experiment II suggest the importance of laboratory examination of compounded social influences for a fuller understanding of the socialization process. Specifically, the results suggest that for lower social-economic subjects high status enhances the influence of persons who provide direct instruction, but such status may actually weaken their influence as social models. Since parents and educators often expound the exemplary "success stories" of prestigious adults, evidence suggesting the deleterious influence of this procedure seems to have particular importance and warrants further examination.

Overall, the findings of these two experiments seem to have direct implications for the social transmission of behavioral standards to children and suggest particular means for carrying out this training. Specifically, the results suggest that (1) predicting a person's

self-imposed standards may be improved by knowledge of the incentive conditions provided during performance, especially when external social constraints are absent, (2) social injunctions, presented through either direct instruction or the exemplary behavior of a socializing agent, will significantly influence childrens own self-imposed standards when alone, especially if this training is accompanied by explanatory verbalizations, (3) even when a stringent injunction presented during training is violated, children may still employ the principle of "deservingness" in determining which substandard performances are worthy of self-administered reward, and (4) high status persons may function particularly poorly as social models for children from modest backgrounds.

Since inculcation of the form of "self-control" examined in the present studies is a frequently emphasized aspect of social training and is closely related to many of the situations which occur in naturalistic settings, experimental analysis of this aspect of behavior seems especially critical in understanding the total socialization process.

References


1. Aronfreed, J. The effects of experimental socialization paradigms upon two moral responses to transgression. Journal of Abnormal and Social Psychology, 1963, 66, 437-448.

2. Aronfreed, J., Cutick, R. A., and Fagen, S. A. Cognitive structure, punishment, and nurturance in the experimental induction of self-criticism. Child Development, 1963, 34, 281-294.

3. Bandura, A. Social learning theory of identificatory processes. In D. A. Goslin and D. C. Glass (Eds.) Handbook of Socialization Theory and Research. Chicago: Rand McNally, 1968.

4. Bandura, A., Grusec, Joan E., and Menlove, Frances L. Vicarious extinction of avoidance behavior. Journal of Personality and Social Psychology, 1967, 5, 16-23.

5. Bandura, A., and Kupers, Carol J. The transmission of self-reinforcement through modeling. Journal of Abnormal and Social Psychology, 1964, 69, 1-9.

6. Bandura, A., and Mischel, W. Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 1965, 2, 698-705.

7. Bandura, A., Ross, Dorothea, and Ross, Sheila A. Imitation of film mediated aggressive models. Journal of Abnormal and Social Psychology, 1963, 66, 3-11.

8. Bandura, A., and Walters, R. H. Social learning and personality development. New York: Holt, Rinehart and Winston, 1963.

9. Bee, Helen L., and Colle, H. A. The origins of standards of excellence: Modeling vs. direct reinforcement. Paper presented at biennial meeting of the Society for Research in Child Development, New York, March, 1967.

10. Kanfer, F. H., and Marston, A. R. [illegible]e conditioning of self-reinforcing responses; an analog[illegible]e to self-confidence training. Psychological Reports, 1963, 13, 63-70.

11. Lefkowitz, M. M., Blake, R. R., and Mouton, Jane S. Status factors in pedestrian violation of traffic signals. Journal of Abnormal and Social Psychology, 1955, 51, 704-706.

12. Liebert, R. M., and Allen, Mary K. The effects of rule structure and reward magnitude on the acquisition and adoption of self-reward criteria. Psychological Reports, 1967, 21, 445-452.

13. Marston, A. R. Variables affecting incidence of self-reinforcement. Psychological Reports, 1964, 14, 879-884.

14. Mischel, W. Personality and Assessment. New York: Wiley, 1968.

15. Mischel, W., and Liebert, R. M. Effects of discrepancies between observed and imposed reward criteria on their acquisition and transmission. Journal of Personality and Social Psychology, 1966, 2, 45-53.

16. Mischel, W., and Liebert, R. M. The role of power in the adoption of self-reward patterns. Child Development, 1967, 38, 673-683.

17. Walters, R. H., and Cheyne, J. A. Some parameters influencing the effects of punishment on social behavior. Paper presented at the annual meeting of the American Psychological Association, New York, 1966.